

partially through the passage for engaging the restrictor and dislodging the second section from the first section.

97
16
35. The plunger lift of claim ~~16~~³⁵ wherein the lower section has more downwardly facing area than the upper section whereby a pressure differential across the united upper and lower sections produces a greater upward force on the lower section than on the upper section if the sections move apart.

Remarks

The Official Office Action of July 28, 2000 and the references therein made of record have been carefully considered. The title and claim 19 have been amended as suggested by the Examiner.

Applicant has amended claims 1, 17 and 20 by incorporating therein the limitations of allowed claims 3, 18 and 21. Formerly dependent claims 9 and 14 have been rewritten in independent form. Claims 3, 18, 21 and 25 have been cancelled.

Claim 16 has been rewritten and claim 35 added so that the subject matter of originally submitted claim 16 is now in claim 35. Claim 16 has been broadened to recite that the lower section is configured to move upwardly upon exposure to a predetermined pressure differential before the upper section moves, which is the concept behind originally submitted claim 16.

It is accordingly submitted that claims 1, 2, 4-17, 19, 20, 22-24 and 35 are allowable. This leaves claims 26-34 for consideration.

The Examiner has rejected claims 26-30 as fully met under 35 USC 102(b) over Montgomery. Applicant controverts this rejection for the following reasons. Claim 26 recites:

A method of lifting liquids from a well producing hydrocarbons from a formation with a plunger lift having a multipart piston, comprising dropping parts of the piston independently in the well, uniting the parts of the piston into a unit near the formation and moving the unit upwardly in the well in response to formation gases passing into the well and thereby pushing liquid upwardly with the piston.

Thus, claim 26 requires dropping parts of the piston independently in the well and uniting the parts into a unit near the formation and moving the unit upwardly in the well in response to formation gases passing into the well and thereby pushing liquid upwardly with the piston.

Montgomery discloses a gas lift arrangement comprising a pair of pistons 30. Applicant assumes the Examiner is reading the two pistons 30 as parts or sections of a single piston. This is the only construction of the reference that allows the Examiner to contend that Montgomery shows "dropping parts of the piston independently in the well". So far as applicant can determine, Montgomery operates by injecting gas lift gas through the annulus 21 so the upper piston 30 moves first. This is shown by a

comparison of Figures 1A and 1B and by studying the paragraph beginning at column 4, line 61 which states, inter alia:

The gas pressure within the annulus 21 is then raised by the operation of the controller 60 until the uppermost inlet valve 22 opens. This will cause the uppermost plunger 30 to raise off the bottom and start its trip to the surface as shown in Figure 1B. After the plunger 30 has reached the surface the controller 60 will stop the injection of gas and the gas pressure within the annulus 21 will decline to permit the uppermost valve 22 to close. . . . After the gas pressure has declined it is again increased by the operation of the controller 60 to a value higher than that shown in Figure 1B in order to open the lower inlet valve 22. When the lower inlet valve 22 opens it will cause the second plunger to raise off the bottom and start its trip to the surface as shown in Figure 1C.

Montgomery says the same thing in column 5, lines 23+:

. . . it can be seen that the plungers are individually lifted to the surface starting with the uppermost plunger
. . . .

Applicant accordingly submits that the plungers 30 of Montgomery do not fall separately to the bottom of the well, unite into a unit and then travel upwardly together. In fact, Montgomery's pistons 30 travel separately upwardly in the well as shown by a comparison of Figures 1B and 1C. In addition, the plungers 30 of Montgomery travel upwardly in the well in response to gas lift gas injected into the well rather than in response to the upward flow of formation contents.

What may be confusing is Figure 1D which shows Montgomery's plungers 30 together. Figure 1D shows dropping the plungers 30 into the well. See column 5, lines 16-22 which states:

After the second plunger has reached the surface the controller will again stop the injection of gas the gas pressure will again decline. The plungers will be released by the controller 80 to start their return trip to the bottom of the production string 13. As shown in Figure 1D, when the plungers reach the bottom of the production string the cycle can be repeated.

Thus, in a way, Montgomery shows the exact opposite of claim 26, i.e. Montgomery shows dropping the plungers 30 simultaneously so they fall together into the well (Figure 1D) and then separate at the bottom of the well and travel separately upwardly (Figure 1C).

It is accordingly submitted that claim 26 and its dependent claims 27-30 are allowable over Montgomery. In addition, claims 27 and 28 recite that gas is flowing upwardly when the piston is moving downwardly. In the event the Examiner continues a rejection of claim 27 or claim 28 on Montgomery, it is respectfully requested that the Examiner explain how gas can flow upwardly in Figure 1D when Montgomery's pistons 30 are moving downwardly.

Independent claims 31 and 32 have been added. Claim 31 is similar to allowed claim 9 and should be allowable for the same reasons as claim 9. Claim 32 is similar to original claim 1 and recites means joining the sections together at the bottom of the

well. As explained above, the showing in Montgomery's Figure 1D is when the plungers 30 are travelling downwardly into the well. It is accordingly submitted that claim 32 is allowable over the art of record.

Newly added claims 33-34 depend from claim 32 and should be allowable for the reasons that claim 32 is allowable. In addition, claim 33 recites a decoupler and claim 34 recites some details of the decoupler, none of which are found in Montgomery.

It is accordingly submitted that this application is in condition for allowance and early steps toward that end are earnestly solicited.

Respectfully submitted,



G. Turner Moller
Registration 22,978

GTM:pot
711 N. Carancahua, Suite 720
720 American Bank Plaza
Corpus Christi, Texas
361/883-7257
October 17, 2000